

International Standard 5498

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Agricultural food products — Determination of crude fibre content — General method

Produits agricoles alimentaires — Détermination de l'indice d'insoluble dit «cellulosique» — Méthode générale

First edition — 1981-04-15

UDC 664 : 543.868

Ref. No. ISO 5498-1981 (E)

Descriptors : agricultural products, tests, determination, indexes (ratios), insoluble matter, extraction analysis.

Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5498 was developed by Technical Committee ISO/TC 34, *Agricultural food products*, and was circulated to the member bodies in September 1979.

It has been approved by the member bodies of the following countries :

Australia	France	Netherlands
Austria	Germany, F.R.	Poland
Brazil	Hungary	Portugal
Bulgaria	India	Romania
Canada	Israel	South Africa, Rep. of
Chile	Kenya	Spain
Cyprus	Korea, Rep. of	Thailand
Czechoslovakia	Libyan Arab Jamahiriya	Turkey
Egypt, Arab Rep. of	Malaysia	United Kingdom
Ethiopia	Mexico	Yugoslavia

The member body of the following country expressed disapproval of the document on technical grounds :

USA

Agricultural food products — Determination of crude fibre content — General method

0 Introduction

There are numerous methods for the determination of the crude fibre content of agricultural food products and, for a given method, numerous variants are used according to the products analysed, or, for the same product, from laboratory to laboratory.

This International Standard therefore fulfils a need for harmonization. It specifies a method of general application based on the Weende method, which is the most commonly used, and basically involves acid treatment followed by alkaline treatment.

Studies carried out have demonstrated the need to specify precisely the conditions for the acid and alkaline treatments and to describe the various procedures used for separating the insoluble matter. These procedures are described in annex B.

1 Scope

This International Standard specifies a conventional method for the determination of the crude fibre content of agricultural food products.

2 Field of application

The method is intended for general application; however, it may be necessary, in certain individual cases, to choose a more appropriate method, particularly in the case of yeasts and products containing less than 1 % of crude fibre for which the method described in ISO 6541 shall be used.

3 Reference

ISO 6541, *Agricultural food products — Determination of crude fibre content — Modified Scharrer method.*

4 Definition

crude fibre content : Conventionally, the whole of the substances which are insoluble and combustible under the operating conditions described in this International Standard.

The crude fibre content is expressed as a percentage by mass, referred either to the product as received or to the dry matter content of the product.

NOTE — In French, the term “indice d’insoluble dit cellulosique” has been adopted for “crude fibre” rather than the alternative “cellulose brute”.

5 Principle

After any necessary grinding and defatting, boiling with sulphuric acid solution of standard concentration, and separation and washing of the insoluble residue.

Boiling this residue with sodium hydroxide solution of standard concentration, then separation, washing, drying and weighing of the insoluble residue, and determination of the loss in mass on incineration.

6 Reagents and materials

All reagents shall be of recognized analytical quality and the water used shall be distilled water or water of at least equivalent purity.

6.1 Sulphuric acid, standard volumetric solution, $c(1/2 \text{ H}_2\text{SO}_4) = 0,255 \pm 0,005 \text{ mol/l}$ (corresponding to 12,5 g of sulphuric acid per litre of solution).

6.2 Sodium hydroxide, standard volumetric solution, $c(\text{NaOH}) = 0,313 \pm 0,005 \text{ mol/l}$ (corresponding to 12,5 g of sodium hydroxide per litre of solution).

This solution shall be as free as possible from carbonates.

6.3 Acetone, or 95 % (V/V) **ethanol**, or **methanol**, or **propan-2-ol**.

6.4 Extraction solvent :

Technical grade *n*-hexane, or light petroleum (having a boiling range between 40 and 60 °C), or diethyl ether, or another solvent or mixture of solvents more suitable for the extraction of fatty substances from certain products to be analysed.